

What is claimed is:

CLAIMS

1. Apparatus for determining occurrence of a failure in an optical transport network (OTN) that is adapted to be associated with synchronous communication equipment, the apparatus comprising:

a failure indication detector operative to detect a failure indication pattern generated in response to a failure occurring in the OTN; and

a correlating unit adapted to be operatively associated with said failure indication detector and said synchronous communication equipment, and adapted to suppress a Loss-of-Frame (LOF) alarm in said synchronous communication equipment in response to receiving an indication that said failure indication pattern has been detected at the failure indication detector and receiving a LOF defect (dLOF) indication from said synchronous communication equipment.

2. Apparatus according to claim 1 and wherein said failure indication detector is comprised in said synchronous communication equipment.

3. Apparatus according to claim 1 and wherein said synchronous communication equipment comprises an aligner, and said correlating unit receives said dLOF indication from said aligner.

4. Apparatus according to claim 3 and wherein said aligner is operative to generate said dLOF indication in response to an incorrect synchronous frame alignment signal (FAS).

5. Apparatus according to claim 4 and wherein said incorrect synchronous FAS is declared when the aligner does not detect a valid synchronous FAS within a predetermined time period.

6. Apparatus according to claim 1 and wherein said correlating unit is

operative to provide to an element management system (EMS) associated with the synchronous communication equipment a failure determination indication, said failure determination indication being used by the EMS to suppress the LOF alarm in the synchronous communication equipment.

7. Apparatus according to claim 1, and wherein said indication of detection of said failure indication pattern comprises the failure indication pattern.

8. Apparatus according to claim 7 and wherein said failure indication pattern comprises a PN-11 sequence.

9. Apparatus according to claim 8 and wherein said PN-11 sequence is characterized by a polynomial of the type $1 + x^9 + x^{11}$

10. Synchronous communication equipment comprising:

a failure indication detector operative to detect a failure indication pattern generated in response to a failure occurring in the OTN;

an aligner operative to generate a Loss-of-Frame defect (dLOF) indication in response to said failure occurring in the OTN; and

a correlating unit operatively associated with said failure indication detector and said aligner, and operative to suppress a Loss-of-Frame (LOF) alarm in the synchronous communication equipment in response to receiving an indication that said failure indication pattern has been detected from the failure indication detector and the dLOF indication from the aligner.

11. Synchronous communication equipment according to claim 10 and further comprising an element management system (EMS) operatively associated with the correlating unit and operative to receive from the correlating unit a failure determination indication in response to reception at the correlating unit of said indication of detection of said failure indication pattern and said dLOF indication, and to employ said failure determination indication to suppress the LOF alarm in the synchronous communication equipment.

12. An optical communication network comprising:

an optical transport network (OTN) comprising an OTN element in which a failure indication generator is operative to generate a failure indication pattern in response to a failure occurring in the OTN; and

synchronous communication equipment operatively associated with said OTN element, the synchronous communication equipment comprising:

a failure indication detector operative to detect said failure indication pattern; and

a correlating unit operatively associated with said failure indication detector and operative to suppress a Loss-of-Frame (LOF) alarm in the synchronous communication equipment in response to receiving an indication that said failure indication pattern has been detected from the failure indication detector and a LOF defect (dLOF) indication from said synchronous communication equipment.

13. A method for determining a failure in an optical transport network (OTN) that is associated with synchronous communication equipment, the method comprising:

detecting a failure indication pattern which is generated in response to a failure occurring in the OTN;

providing an indication of detection of said failure indication pattern and a Loss-of-Frame defect (dLOF) indication; and

suppressing a LOF alarm in said synchronous communication equipment in response to said providing.